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(54) Anti-sense regulation of gene expression in plant cells.

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Regulation of expression of genes encoded for in plant cell genomes is achieved by integration of a gene under the transcriptional control of a promoter which is functional in the host and in which the transcribed strand of DNA is complementary to the strand of DNA that is transcribed from the endogenous gene(s) one wishes to regulate. The integrated gene, referred to as anti-sense, provides an RNA sequence capable of binding to naturally existing RNAs, exemplified by polygalacturonase, and inhibiting their expression, where the anti-sense sequence may bind to the coding, non-coding, or both, portions of the RNA. The anti-sense construction may be introduced into the plant cells in a variety of ways and be integrated into the plant genome for inducible or constitutive transcription of the anti-sense sequence. A wide variety of plant cell properties may be modified by employing this technique.



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EP 87 30 2367

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
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X	CHEMICAL ABSTRACTS, vol. 103, 1985, page 211, no. 155198q, Columbus, Ohio, US; P.E. MANSSON et al.: "Characterization of fruit-specific cDNAs from tomato", & MOL. GEN. GENET. 1985, 200(3), 356-61 * Abstract *	11	
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X	NATURE, vol. 315, 13th June 1985, pages 601-603; J. COLEMAN et al.: "A novel immune system against bacteriophage infection using complementary RNA (micRNA)" * Page 603, right-hand column, lines 5-12 *	1-3,6-10	TECHNICAL FIELDS SEARCHED (Int. Cl.4) C 12 N A 01 H
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The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	20-01-1989	MADDOX A.D.	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
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X	EP-A-0 159 779 (AGRIGENETICS) * Page 49, lines 1-9 *	6,8,9	
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O, A	CHEMICAL ABSTRACTS, vol. 109, 1988, page 400, no. 125987c, Columbus, Ohio, US; P.H. MORGENS et al.: "Searching for molecular mechanisms involved in fruit ripening", & UCLA SYMP. MOL. CELL. BIOL. NEW SER. 1987, 44(MOL. BIOL. PLANT GROWTH CONTROL), 157-66 * Abstract *	1, 4, 11	
A	SCIENCE, vol. 229, 26th July 1985, pages 345-352; J.G. IZANT et al.: "Constitutive and conditional suppression of exogenous and endogenous genes by anti-sense RNA" * Whole article *	1-3, 4	
A	CHEMICAL ABSTRACTS, vol. 104, 1986, page 159, no. 15979r, Columbus, Ohio, US; A. SLATER et al.: "Isolation and characterization of cDNA clones for tomato polygalacturonase and other ripening-related proteins", & PLANT MOL. BIOL. 1985, 5(3), 137-147 * Abstract *	4, 5	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	CHEMICAL ABSTRACTS, vol. 97, 1982, page 456, no. 88858x, Columbus, Ohio, US; R. PRESSEY et al.: "Pectic enzymes in 'Long Keeper' tomatoes", & HORTSCIENCE 1982, 17(3, Sect. 1), 398-400 * Abstract *	4, 5	
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E	EP-A-0 223 452 (MONSANTO) * Page 15, lines 13-33; example 9; page 17, lines 1-5 *	1-3,5,6 -10													
P,X	WO-A-8 605 516 (DUKE UNIVERSITY) * Page 2, lines 10-22; page 11, lines 8-20; page 27, line 18 - page 28, line 2; claim 3 *	1-3,5- 10													
E	EP-A-0 240 332 (LUBRIZOL) * Whole document *	1-3,6- 10													
E	WO-A-8 801 645 (MACQUARIE UNIVERSITY) * Claims *	1-3,6- 10													
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			TECHNICAL FIELDS SEARCHED (Int. Cl.4)												
<p>The present search report has been drawn up for all claims</p> <table border="1"> <tr> <td>Place of search</td> <td>Date of completion of the search</td> <td>Examiner</td> </tr> <tr> <td>THE HAGUE</td> <td>20-01-1989</td> <td>MADDOX A.D.</td> </tr> <tr> <td colspan="3"> CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document </td> </tr> <tr> <td colspan="3"> T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document </td> </tr> </table>				Place of search	Date of completion of the search	Examiner	THE HAGUE	20-01-1989	MADDOX A.D.	CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		
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